

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Notes
1	0.499	7.25	94.972	Sealed Manhole	1200	436617.897	295339.556	1.652	Auto-design is off
2			94.980	Manhole	1200	436561.249	295384.838	1.980	Auto-design is off
P6	1.670	5.00	95.000	Manhole	1200	436547.738	295419.009	1.500	
3			94.961	Manhole	1200	436522.929	295415.480	2.871	Auto-design is off
4	0.029	4.00	93.983	Manhole	1350	436491.280	295437.889	2.253	Auto-design is off
P7A	0.840	4.00	94.000	Manhole	1200	436469.929	295480.884	1.500	
5			93.962	Manhole	1350	436445.121	295477.355	2.492	Auto-design is off
P7B	0.840	4.00	94.000	Manhole	1200	436429.264	295519.006	1.500	
6			92.934	Manhole	1350	436404.420	295515.432	1.804	Auto-design is off
7			92.719	Manhole	1350	436373.256	295542.305	1.689	Auto-design is off
8			92.281	Manhole	1350	436354.730	295567.273	1.321	Auto-design is off
9			93.119	Manhole	1350	436303.706	295603.924	2.339	Auto-design is off
10			92.400	Manhole	1350	436239.889	295669.623	2.400	Auto-design is off
P9	1.260	5.00	94.470	Manhole	1200	436487.673	295689.922	2.050	
16	1.214	17.00	92.500	Sealed Manhole	1350	436474.264	295696.711	2.570	Auto-design is off
17			91.411	Sealed Manhole	1350	436442.193	295727.674	1.581	Auto-design is off
18	0.175	4.00	93.500	Manhole	1350	436410.267	295716.026	3.765	Auto-design is off
19			93.000	Manhole	1350	436349.656	295717.560	4.100	Auto-design is off
20			90.300	Manhole	1350	436323.097	295714.255	1.700	
P1HW1			89.800	Manhole	1350	436301.189	295703.872	1.300	
P8	1.800	4.00	94.500	Manhole	1500	436340.377	295700.470	3.100	
P1HW2			89.800	Manhole	1500	436303.917	295698.278	1.300	
P1HW3	0.314	4.00	90.000	Manhole	1350	436231.726	295697.384	1.500	Auto-design is off
11			91.000	Manhole	1350	436219.691	295702.108	3.570	Auto-design is off
12			88.740	Manhole	1350	436198.662	295720.829	2.600	Auto-design is off
P2HW1			88.000	Manhole	1350	436188.882	295722.723	1.950	
P2HW2	0.200	4.00	88.000	Manhole	1350	436156.955	295765.902	1.950	Auto-design is off
14			87.800	Manhole	1800	436151.444	295772.777	1.805	Auto-design is off
15			87.200	Manhole	1350	436148.293	295779.178	1.220	

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	72.522	0.600	93.320	93.000	0.320	226.6	300	8.41	50.0
1.001	2	3	49.065	0.600	93.000	92.090	0.910	53.9	300	8.79	50.0
2.000	P6	3	25.059	0.600	93.500	92.240	1.260	19.9	150	5.18	50.0
1.002	3	4	38.779	0.600	92.090	91.730	0.360	107.7	300	9.22	50.0
1.003	4	5	60.731	0.600	91.730	91.470	0.260	233.6	375	10.08	50.0
3.000	P7A	5	25.058	0.600	92.500	91.695	0.805	31.1	150	4.23	50.0
1.004	5	6	55.735	0.600	91.470	91.200	0.270	206.4	375	10.82	50.0
4.000	P7B	6	25.100	0.600	92.500	91.425	1.075	23.3	150	4.20	50.0
1.005	6	7	41.150	0.600	91.130	91.030	0.100	411.5	375	11.59	50.0
1.006	7	8	31.090	0.600	91.030	90.960	0.070	444.1	375	12.20	50.0
1.007	8	9	62.823	0.600	90.960	90.780	0.180	349.0	375	13.28	50.0
1.008	9	10	91.591	0.600	90.780	90.000	0.780	117.4	375	14.20	48.9
1.009	10	11	38.252	0.600	90.000	87.430	2.570	14.9	375	14.33	48.2
7.000	P9	16	15.030	0.600	92.420	89.930	2.490	6.0	375	5.03	50.0
7.001	16	17	44.579	0.600	89.930	89.830	0.100	445.8	375	17.87	50.0
7.002	17	18	33.984	0.600	89.830	89.735	0.095	357.7	375	18.47	50.0
7.003	18	19	60.630	0.600	89.735	88.900	0.835	72.6	375	18.94	50.0
7.004	19	20	26.764	0.600	88.900	88.600	0.300	89.2	375	19.17	34.5
7.005	20	P1HW1	24.244	0.600	88.600	88.550	0.050	484.9	450	19.62	34.1
8.000	P8	P1HW2	36.526	0.600	91.400	88.550	2.850	12.8	600	4.09	50.0
5.000	P1HW3	11	12.929	0.600	88.500	87.430	1.070	12.1	375	4.04	50.0
6.000	P1HW3	11	12.929	0.600	89.425	87.430	1.995	6.5	375	4.03	50.0
1.010	11	12	28.155	0.600	87.430	86.140	1.290	21.8	375	14.45	47.9
1.011	12	P2HW1	9.962	0.600	86.140	86.050	0.090	110.7	450	14.54	45.9

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1	2	1.040	73.5	67.6	1.352	1.680	0.499	0.0	228	1.174
1.001	2	3	2.145	151.7	67.6	1.680	2.571	0.499	0.0	140	2.087
2.000	P6	3	2.268	40.1	226.3	1.350	2.571	1.670	0.0	150	2.311
1.002	3	4	1.514	107.0	294.0	2.571	1.953	2.169	0.0	300	1.534
1.003	4	5	1.181	130.4	297.9	1.878	2.117	2.198	0.0	375	1.196
3.000	P7A	5	1.811	32.0	113.8	1.350	2.117	0.840	0.0	150	1.844
1.004	5	6	1.257	138.8	411.7	2.117	1.359	3.038	0.0	375	1.273
4.000	P7B	6	2.093	37.0	113.8	1.350	1.359	0.840	0.0	150	2.132
1.005	6	7	0.887	97.9	525.6	1.429	1.314	3.878	0.0	375	0.898
1.006	7	8	0.853	94.2	525.6	1.314	0.946	3.878	0.0	375	0.864
1.007	8	9	0.964	106.5	525.6	0.946	1.964	3.878	0.0	375	0.976
1.008	9	10	1.671	184.5	514.0	1.964	2.025	3.878	0.0	375	1.692
1.009	10	11	4.716	520.9	506.6	2.025	3.195	3.878	0.0	301	5.336
7.000	P9	16	7.414	818.8	170.8	1.675	2.195	1.260	0.0	115	5.903
7.001	16	17	0.851	94.0	335.3	2.195	1.206	2.474	0.0	375	0.862
7.002	17	18	0.952	105.1	335.3	1.206	3.390	2.474	0.0	375	0.964
7.003	18	19	2.128	235.0	359.0	3.390	3.725	2.649	0.0	375	2.155
7.004	19	20	1.919	211.9	248.1	3.725	1.325	2.649	0.0	375	1.943
7.005	20	P1HW1	0.916	145.7	244.6	1.250	0.800	2.649	0.0	450	0.928
8.000	P8	P1HW2	6.825	1929.7	243.9	2.500	0.650	1.800	0.0	143	4.752
5.000	P1HW3	11	5.236	578.3	42.6	1.125	3.195	0.314	0.0	68	3.101
6.000	P1HW3	11	7.154	790.2	0.0	0.200	3.195	0.000	0.0	0	0.000
1.010	11	12	3.892	429.9	544.3	3.195	2.225	4.192	0.0	375	3.942
1.011	12	P2HW1	1.931	307.2	521.5	2.150	1.500	4.192	0.0	450	1.956

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.012	P2HW2	14	8.811	0.600	86.050	85.995	0.055	160.2	375	4.10	45.0
1.013	14	15	7.135	0.600	85.995	85.980	0.015	475.7	375	4.25	44.7

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.012	P2HW2	14	1.429	157.8	24.4	1.575	1.430	0.200	0.0	99	1.047
1.013	14	15	0.824	91.0	24.2	1.430	0.845	0.200	0.0	131	0.700

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	72.522	226.6	300	94.972	93.320	1.352	94.980	93.000	1.680
1.001	49.065	53.9	300	94.980	93.000	1.680	94.961	92.090	2.571
2.000	25.059	19.9	150	95.000	93.500	1.350	94.961	92.240	2.571
1.002	38.779	107.7	300	94.961	92.090	2.571	93.983	91.730	1.953
1.003	60.731	233.6	375	93.983	91.730	1.878	93.962	91.470	2.117
3.000	25.058	31.1	150	94.000	92.500	1.350	93.962	91.695	2.117
1.004	55.735	206.4	375	93.962	91.470	2.117	92.934	91.200	1.359
4.000	25.100	23.3	150	94.000	92.500	1.350	92.934	91.425	1.359
1.005	41.150	411.5	375	92.934	91.130	1.429	92.719	91.030	1.314
1.006	31.090	444.1	375	92.719	91.030	1.314	92.281	90.960	0.946
1.007	62.823	349.0	375	92.281	90.960	0.946	93.119	90.780	1.964
1.008	91.591	117.4	375	93.119	90.780	1.964	92.400	90.000	2.025
1.009	38.252	14.9	375	92.400	90.000	2.025	91.000	87.430	3.195
7.000	15.030	6.0	375	94.470	92.420	1.675	92.500	89.930	2.195
7.001	44.579	445.8	375	92.500	89.930	2.195	91.411	89.830	1.206
7.002	33.984	357.7	375	91.411	89.830	1.206	93.500	89.735	3.390
7.003	60.630	72.6	375	93.500	89.735	3.390	93.000	88.900	3.725
7.004	26.764	89.2	375	93.000	88.900	3.725	90.300	88.600	1.325

Link	US Node	Dia (mm)	DS Node	Dia (mm)
1.000	1	1200	2	1200
1.001	2	1200	3	1200
2.000	P6	1200	3	1200
1.002	3	1200	4	1350
1.003	4	1350	5	1350
3.000	P7A	1200	5	1350
1.004	5	1350	6	1350
4.000	P7B	1200	6	1350
1.005	6	1350	7	1350
1.006	7	1350	8	1350
1.007	8	1350	9	1350
1.008	9	1350	10	1350
1.009	10	1350	11	1350
7.000	P9	1200	16	1350
7.001	16	1350	17	1350
7.002	17	1350	18	1350
7.003	18	1350	19	1350
7.004	19	1350	20	1350

Pipeline Schedule

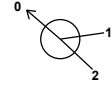
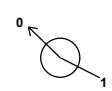
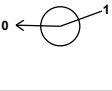
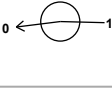
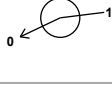
Link	Length (m)	Slope (1:X)	Dia (mm)	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.005	24.244	484.9	450	90.300	88.600	1.250	89.800	88.550	0.800
8.000	36.526	12.8	600	94.500	91.400	2.500	89.800	88.550	0.650
5.000	12.929	12.1	375	90.000	88.500	1.125	91.000	87.430	3.195
6.000	12.929	6.5	375	90.000	89.425	0.200	91.000	87.430	3.195
1.010	28.155	21.8	375	91.000	87.430	3.195	88.740	86.140	2.225
1.011	9.962	110.7	450	88.740	86.140	2.150	88.000	86.050	1.500
1.012	8.811	160.2	375	88.000	86.050	1.575	87.800	85.995	1.430
1.013	7.135	475.7	375	87.800	85.995	1.430	87.200	85.980	0.845

Link	US Node	Dia (mm)	DS Node	Dia (mm)
7.005	20	1350	P1HW1	1350
8.000	P8	1500	P1HW2	1500
5.000	P1HW3	1350	11	1350
6.000	P1HW3	1350	11	1350
1.010	11	1350	12	1350
1.011	12	1350	P2HW1	1350
1.012	P2HW2	1350	14	1800
1.013	14	1800	15	1350

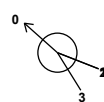
Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	94.972	1.652	1200				
				0	1.000	93.320	300
2	94.980	1.980	1200		1	1.000	93.000
				0	1.001	93.000	300
P6	95.000	1.500	1200				
				0	2.000	93.500	150
3	94.961	2.871	1200		1	2.000	92.240
				2	1.001	92.090	300
				0	1.002	92.090	300
4	93.983	2.253	1350		1	1.002	91.730
				0	1.003	91.730	375
P7A	94.000	1.500	1200				
				0	3.000	92.500	150
5	93.962	2.492	1350		1	3.000	91.695
				2	1.003	91.470	375
				0	1.004	91.470	375

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
P7B	94.000	1.500	1200					
				0	4.000	92.500	150	
6	92.934	1.804	1350		1	4.000	91.425	150
				2	1.004	91.200	375	
				0	1.005	91.130	375	
7	92.719	1.689	1350		1	1.005	91.030	375
				0	1.006	91.030	375	
8	92.281	1.321	1350		1	1.006	90.960	375
				0	1.007	90.960	375	
9	93.119	2.339	1350		1	1.007	90.780	375
				0	1.008	90.780	375	
10	92.400	2.400	1350		1	1.008	90.000	375
				0	1.009	90.000	375	
P9	94.470	2.050	1200					
				0	7.000	92.420	375	
16	92.500	2.570	1350		1	7.000	89.930	375
				0	7.001	89.930	375	
17	91.411	1.581	1350		1	7.001	89.830	375
				0	7.002	89.830	375	
18	93.500	3.765	1350		1	7.002	89.735	375
				0	7.003	89.735	375	
19	93.000	4.100	1350		1	7.003	88.900	375
				0	7.004	88.900	375	
20	90.300	1.700	1350		1	7.004	88.600	375
				0	7.005	88.600	450	
P1HW1	89.800	1.300	1350		1	7.005	88.550	450

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
P8	94.500	3.100	1500					
				0	8.000	91.400	600	
P1HW2	89.800	1.300	1500		1	8.000	88.550	600
P1HW3	90.000	1.500	1350					
				0-1	5.000	88.500	375	
				0-2	6.000	89.425	375	
11	91.000	3.570	1350		1	6.000	87.430	375
				2	5.000	87.430	375	
				3	1.009	87.430	375	
				0	1.010	87.430	375	
12	88.740	2.600	1350		1	1.010	86.140	375
				0	1.011	86.140	450	
P2HW1	88.000	1.950	1350		1	1.011	86.050	450
P2HW2	88.000	1.950	1350					
				0	1.012	86.050	375	
14	87.800	1.805	1800		1	1.012	85.995	375
				0	1.013	85.995	375	
15	87.200	1.220	1350		1	1.013	85.980	375

Simulation Settings

Rainfall Methodology	FEH-13	Skip Steady State	x	Check Discharge Rate(s)	x
Rainfall Events	Singular	Drain Down Time (mins)	2440	Check Discharge Volume	x
Summer CV	1.000	Additional Storage (m³/ha)	20.0		
Analysis Speed	Detailed	Starting Level (m)			

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	0	0
100	0	0	0
100	40	0	0

Node P6 Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	8.0	Orifice Diameter (m)	0.121
Invert Level (m)	93.500	Min Outlet Diameter (m)	0.145		

Node P7A Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	5.0	Orifice Diameter (m)	0.098
Invert Level (m)	92.500	Min Outlet Diameter (m)	0.145		

Node P7B Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	5.0	Orifice Diameter (m)	0.098
Invert Level (m)	92.500	Min Outlet Diameter (m)	0.145		

Node P9 Online ACO Q-Brake Control

Flap Valve	x	Design Depth (m)	1.000	Min Node Diameter (mm)	1050
Replaces Downstream Link	✓	Design Flow (l/s)	6.0	Orifice Diameter (m)	0.106
Invert Level (m)	92.420	Min Outlet Diameter (m)	0.145		

Node P1HW3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	88.500	Product Number	CTL-SHE-0173-1470-1000-1470
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	14.7	Min Node Diameter (mm)	1200

Node 14 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	85.995	Product Number	CTL-SHE-0249-3370-1000-3370
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	33.7	Min Node Diameter (mm)	1800

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	94.600	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	11	Depth (m)	0.300
Safety Factor	2.0	Width (m)	50.000	Inf Depth (m)	
Porosity	0.30	Length (m)	35.000		

Node P6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	93.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1485

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1670.0	1670.0	1.000	1670.0	1814.9	1.100	0.0	1814.9

Node P7A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1125

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	840.0	840.0	1.000	840.0	942.7	1.100	0.0	942.7

Node P7B Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1125

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	840.0	840.0	1.000	840.0	942.7	1.100	0.0	942.7

Node P9 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	92.420
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1530

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1260.0	1260.0	1.000	1260.0	1385.8	1.100	0.0	1385.8

Node P1HW3 Pond Storage Structure

Invert Level (m)	88.500	Time to half empty (mins)	1672	Analyse flow through structure	x
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Inlets

P1HW2 | P1HW1

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1437.0	1.000	1987.0

Node P2HW2 Pond Storage Structure

Invert Level (m)	86.050	Time to half empty (mins)	2400	Analyse flow through structure	x
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Inlets

P2HW1

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	878.0	1.500	1683.0	2.150	2023.0

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	15	94.604	1.284	154.1	10.4803	0.0000	SURCHARGED
30 minute summer	2	23	93.648	0.648	141.0	0.7324	0.0000	SURCHARGED
480 minute summer	P6	480	93.921	0.421	115.5	712.2736	0.0000	SURCHARGED
30 minute summer	3	23	92.981	0.891	133.7	1.0083	0.0000	SURCHARGED
30 minute summer	4	23	92.377	0.647	134.6	1.0923	0.0000	SURCHARGED
480 minute summer	P7A	480	92.897	0.397	58.1	338.7061	0.0000	SURCHARGED
30 minute summer	5	24	92.094	0.624	135.7	0.8931	0.0000	SURCHARGED
480 minute summer	P7B	480	92.897	0.397	58.1	338.7061	0.0000	SURCHARGED
30 minute summer	6	24	91.810	0.680	137.1	0.9728	0.0000	SURCHARGED
30 minute summer	7	24	91.573	0.543	137.2	0.7770	0.0000	SURCHARGED
30 minute summer	8	24	91.384	0.424	137.2	0.6067	0.0000	SURCHARGED
30 minute summer	9	25	91.045	0.265	137.0	0.3786	0.0000	OK
30 minute summer	10	25	90.132	0.132	136.9	0.1887	0.0000	OK
600 minute summer	P9	600	92.842	0.422	70.5	537.8800	0.0000	SURCHARGED
30 minute summer	16	27	92.019	2.089	240.0	22.7265	0.0000	SURCHARGED
30 minute summer	17	27	91.283	1.453	233.6	2.0795	0.0000	FLOOD RISK
30 minute summer	18	27	90.695	0.960	243.6	2.2671	0.0000	SURCHARGED
30 minute summer	19	29	89.659	0.759	243.3	1.0864	0.0000	SURCHARGED
600 minute summer	20	600	89.461	0.861	80.4	1.2318	0.0000	SURCHARGED
600 minute summer	P1HW1	600	89.460	0.960	80.1	0.0000	0.0000	OK
15 minute summer	P8	10	91.708	0.308	838.8	4.1253	0.0000	OK
600 minute summer	P1HW2	600	89.459	0.959	100.7	0.0000	0.0000	OK
600 minute summer	P1HW3	600	89.451	0.951	75.0	1634.7870	0.0000	SURCHARGED
30 minute summer	11	25	87.582	0.152	151.5	0.2170	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	135.6	1.962	1.845	5.1069	
30 minute summer	2	1.001	3	126.9	1.854	0.837	3.4551	
480 minute summer	P6	ACO Q-Brake	3	8.0				
30 minute summer	3	1.002	4	129.6	1.841	1.211	2.7308	
30 minute summer	4	1.003	5	131.3	1.316	1.007	6.6985	
480 minute summer	P7A	ACO Q-Brake	5	5.0				
30 minute summer	5	1.004	6	132.4	1.314	0.953	6.1474	
480 minute summer	P7B	ACO Q-Brake	6	5.0				
30 minute summer	6	1.005	7	137.2	1.244	1.401	4.5387	
30 minute summer	7	1.006	8	137.2	1.244	1.457	3.4291	
30 minute summer	8	1.007	9	137.0	1.308	1.287	6.0754	
30 minute summer	9	1.008	10	136.9	2.317	0.742	5.3889	
30 minute summer	10	1.009	11	136.9	3.591	0.263	1.4591	
600 minute summer	P9	ACO Q-Brake	16	6.0				
30 minute summer	16	7.001	17	233.6	2.118	2.484	4.9169	
30 minute summer	17	7.002	18	233.6	2.118	2.221	3.7483	
30 minute summer	18	7.003	19	243.3	2.206	1.035	6.6873	
30 minute summer	19	7.004	20	243.1	2.205	1.147	2.9520	
600 minute summer	20	7.005	P1HW1	80.1	0.639	0.549	3.8413	
15 minute summer	P8	8.000	P1HW2	839.4	6.246	0.435	4.9102	
600 minute summer	P1HW3	Hydro-Brake®	11	14.7				
600 minute summer	P1HW3	6.000	11	7.7	0.824	0.010	0.1403	
30 minute summer	11	1.010	12	151.4	2.535	0.352	1.6795	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	12	1005	86.538	0.398	52.2	0.5696	0.0000	OK
960 minute summer	P2HW1	1005	86.536	0.486	51.9	0.0000	0.0000	OK
960 minute summer	P2HW2	1005	86.523	0.473	46.5	485.1732	0.0000	SURCHARGED
960 minute summer	14	1005	86.518	0.523	33.7	1.3313	0.0000	SURCHARGED
15 minute summer	15	1	85.980	0.000	28.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	12	1.011	P2HW1	51.9	1.175	0.169	1.5281	
960 minute summer	P2HW2	1.012	14	33.7	0.516	0.214	0.9718	
960 minute summer	14	Hydro-Brake®	15	33.7				5055.6

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	1	23	94.641	1.321	205.5	29.7862	0.0000	SURCHARGED
30 minute summer	2	23	93.707	0.707	144.1	0.7995	0.0000	SURCHARGED
720 minute summer	P6	720	94.098	0.598	108.5	1013.3720	0.0000	SURCHARGED
60 minute summer	3	38	93.055	0.965	134.6	1.0912	0.0000	SURCHARGED
60 minute summer	4	37	92.458	0.728	142.3	1.2292	0.0000	SURCHARGED
600 minute summer	P7A	600	93.077	0.577	62.3	491.6304	0.0000	SURCHARGED
60 minute summer	5	38	92.155	0.685	136.7	0.9808	0.0000	SURCHARGED
600 minute summer	P7B	600	93.077	0.577	62.3	491.6304	0.0000	SURCHARGED
60 minute summer	6	38	91.854	0.724	141.1	1.0356	0.0000	SURCHARGED
60 minute summer	7	38	91.603	0.573	141.0	0.8203	0.0000	SURCHARGED
60 minute summer	8	38	91.404	0.444	141.0	0.6350	0.0000	SURCHARGED
60 minute summer	9	39	91.050	0.270	141.0	0.3869	0.0000	OK
60 minute summer	10	39	90.134	0.134	141.0	0.1919	0.0000	OK
720 minute summer	P9	720	93.026	0.606	81.9	771.1351	0.0000	SURCHARGED
15 minute summer	16	14	92.500	2.570	284.6	32.6060	0.0000	FLOOD RISK
15 minute summer	17	13	91.411	1.581	270.1	3.0303	0.0000	FLOOD RISK
30 minute summer	18	28	91.781	2.046	303.1	4.8316	0.0000	SURCHARGED
30 minute summer	19	29	90.187	1.287	302.0	1.8423	0.0000	SURCHARGED
480 minute summer	20	312	89.533	0.933	126.0	1.3345	0.0000	SURCHARGED
480 minute summer	P1HW1	312	89.525	1.025	125.8	0.0000	0.0000	OK
15 minute summer	P8	10	91.773	0.373	1103.9	4.9844	0.0000	OK
480 minute summer	P1HW2	312	89.525	1.025	165.6	0.0000	0.0000	OK
480 minute summer	P1HW3	312	89.506	1.006	114.3	1757.9180	0.0000	SURCHARGED
60 minute summer	11	39	87.584	0.154	155.1	0.2199	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	1	1.000	2	144.1	2.047	1.960	5.1069	
30 minute summer	2	1.001	3	125.0	1.868	0.824	3.4551	
720 minute summer	P6	ACO Q-Brake	3	8.0				
60 minute summer	3	1.002	4	132.5	1.882	1.238	2.7308	
60 minute summer	4	1.003	5	131.8	1.321	1.010	6.6985	
600 minute summer	P7A	ACO Q-Brake	5	5.0				
60 minute summer	5	1.004	6	136.1	1.294	0.981	6.1474	
600 minute summer	P7B	ACO Q-Brake	6	5.0				
60 minute summer	6	1.005	7	141.0	1.278	1.440	4.5387	
60 minute summer	7	1.006	8	141.0	1.278	1.496	3.4291	
60 minute summer	8	1.007	9	141.0	1.338	1.324	6.1367	
60 minute summer	9	1.008	10	141.0	2.327	0.764	5.5151	
60 minute summer	10	1.009	11	140.9	3.624	0.271	1.4887	
720 minute summer	P9	ACO Q-Brake	16	6.0				
15 minute summer	16	7.001	17	270.1	2.449	2.872	4.9169	
15 minute summer	17	7.002	18	270.7	2.454	2.575	3.7483	
30 minute summer	18	7.003	19	302.0	2.739	1.285	6.6873	
30 minute summer	19	7.004	20	301.7	2.736	1.424	2.9520	
480 minute summer	20	7.005	P1HW1	125.8	0.794	0.863	3.8413	
15 minute summer	P8	8.000	P1HW2	1104.7	6.594	0.572	6.1159	
480 minute summer	P1HW3	Hydro-Brake®	11	14.7				
480 minute summer	P1HW3	6.000	11	83.4	3.099	0.106	0.3538	
60 minute summer	11	1.010	12	155.1	2.552	0.361	1.7531	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	12	975	87.052	0.912	111.4	1.3046	0.0000	SURCHARGED
960 minute summer	P2HW1	975	87.049	0.999	111.1	0.0000	0.0000	OK
960 minute summer	P2HW2	975	87.033	0.983	73.9	1138.7580	0.0000	SURCHARGED
960 minute summer	14	975	87.028	1.033	34.2	2.6292	0.0000	SURCHARGED
15 minute summer	15	1	85.980	0.000	31.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	12	1.011	P2HW1	111.1	1.231	0.362	1.5784	
960 minute summer	P2HW2	1.012	14	34.2	0.516	0.217	0.9718	
960 minute summer	14	Hydro-Brake®	15	34.2				6131.1

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	1	25	94.718	1.398	287.7	70.9850	0.0000	FLOOD RISK
30 minute summer	2	21	93.779	0.779	140.4	0.8814	0.0000	SURCHARGED
720 minute summer	P6	720	94.382	0.882	151.9	1493.6770	0.0000	SURCHARGED
30 minute summer	3	20	93.152	1.062	134.0	1.2011	0.0000	SURCHARGED
30 minute summer	4	20	92.570	0.840	153.8	1.4189	0.0000	SURCHARGED
600 minute summer	P7A	600	93.347	0.847	87.2	721.6575	0.0000	SURCHARGED
30 minute summer	5	20	92.244	0.774	150.9	1.1080	0.0000	SURCHARGED
600 minute summer	P7B	600	93.347	0.847	87.2	721.6575	0.0000	SURCHARGED
30 minute summer	6	20	91.918	0.788	146.9	1.1275	0.0000	SURCHARGED
30 minute summer	7	20	91.647	0.617	146.6	0.8833	0.0000	SURCHARGED
30 minute summer	8	20	91.432	0.472	146.5	0.6751	0.0000	SURCHARGED
30 minute summer	9	21	91.058	0.278	146.3	0.3979	0.0000	OK
30 minute summer	10	21	90.137	0.137	146.3	0.1960	0.0000	OK
720 minute summer	P9	720	93.305	0.885	114.6	1127.3120	0.0000	SURCHARGED
15 minute summer	16	11	92.500	2.570	398.5	65.2067	0.0000	FLOOD RISK
15 minute summer	17	10	91.411	1.581	355.9	6.2822	0.0000	FLOOD RISK
30 minute summer	18	25	93.500	3.765	416.4	8.8892	12.5745	FLOOD
60 minute summer	19	46	91.083	2.183	377.1	3.1245	0.0000	SURCHARGED
60 minute summer	20	47	89.862	1.262	376.7	1.8066	0.0000	SURCHARGED
240 minute summer	P1HW1	152	89.633	1.133	259.5	0.0000	0.0000	OK
15 minute summer	P8	10	91.897	0.497	1545.5	6.6484	0.0000	OK
240 minute summer	P1HW2	152	89.627	1.127	395.4	0.0000	0.0000	OK
240 minute summer	P1HW3	156	89.596	1.096	329.2	1957.6580	0.0000	SURCHARGED
240 minute summer	11	156	88.249	0.819	369.2	1.1720	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	1	1.000	2	140.4	2.054	1.910	5.1069	
30 minute summer	2	1.001	3	127.0	1.875	0.837	3.4551	
720 minute summer	P6	ACO Q-Brake	3	8.0				
30 minute summer	3	1.002	4	131.9	1.873	1.232	2.7308	
30 minute summer	4	1.003	5	146.1	1.326	1.120	6.6985	
600 minute summer	P7A	ACO Q-Brake	5	5.0				
30 minute summer	5	1.004	6	141.9	1.307	1.022	6.1474	
600 minute summer	P7B	ACO Q-Brake	6	5.0				
30 minute summer	6	1.005	7	146.6	1.329	1.497	4.5387	
30 minute summer	7	1.006	8	146.5	1.329	1.555	3.4291	
30 minute summer	8	1.007	9	146.3	1.380	1.374	6.2168	
30 minute summer	9	1.008	10	146.3	2.339	0.793	5.6787	
30 minute summer	10	1.009	11	146.1	3.663	0.280	1.5268	
720 minute summer	P9	ACO Q-Brake	16	6.0				
15 minute summer	16	7.001	17	355.9	3.227	3.784	4.9169	
15 minute summer	17	7.002	18	355.3	3.222	3.379	3.7483	
30 minute summer	18	7.003	19	382.0	3.464	1.625	6.6873	
60 minute summer	19	7.004	20	376.7	3.416	1.778	2.9520	
60 minute summer	20	7.005	P1HW1	376.1	2.374	2.580	3.8413	
15 minute summer	P8	8.000	P1HW2	1546.6	6.893	0.801	8.1409	
240 minute summer	P1HW3	Hydro-Brake®	11	15.3				
240 minute summer	P1HW3	6.000	11	284.4	3.177	0.360	1.0287	
240 minute summer	11	1.010	12	366.7	3.325	0.853	3.1054	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	12	735	87.738	1.598	295.1	2.2869	0.0000	SURCHARGED
720 minute summer	P2HW1	750	87.734	1.684	294.6	0.0000	0.0000	OK
720 minute summer	P2HW2	750	87.714	1.664	167.9	2229.4120	0.0000	FLOOD RISK
720 minute summer	14	750	87.706	1.711	43.6	4.3535	0.0000	FLOOD RISK
15 minute summer	15	1	85.980	0.000	33.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	12	1.011	P2HW1	294.6	1.860	0.959	1.5784	
720 minute summer	P2HW2	1.012	14	43.6	0.517	0.276	0.9718	
720 minute summer	14	Hydro-Brake®	15	43.6				6790.7